

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for correlating services within a computer network, the method comprising:

providing a message interchange network for exchanging application-level messages between services that are located outside the message interchange network, the message interchange network being built on an open platform overlaying a public network and managing a plurality of services;

registering, at the message interchange network, each of the plurality of services so that each service is specified as being accessible by a plurality of one or more of the plurality of services according to one or more properties and permissions associated with each of service in the plurality of services; and

receiving, at the message interchange network, a plurality of application-level messages that each specify one or more of the plurality of services that are to receive the each application-level message and forwarding each received application-level message towards its specified service according to the one or more properties and permissions associated with the specified service;

~~tracking~~ retaining correlation information regarding each application-level message received into message interchange network, wherein the application-level messages are being sent between pairs of the services, wherein the retained correlation information for each application-level message pertains to each application-level message and any other application-level messages related to the each application-level message, the retained correlation information including one or more of: a Hop Identifier (ID) uniquely identifying a hop between a sender and receiver of the each application-level message, call information regarding a call to which the each application-level message and any other related application-level message belongs, ~~and~~ or session information regarding a session to which the each application-level message and any other related application-level message belongs, wherein the correlation information is retained in a searchable format that is accessible by the message interchange network;

receiving, at the message interchange network, a query from a first service to search the retained correlation information for a specific one or more portions of the retained correlation information; and

sending, to the first service, a response to the query that includes the specific one or more portions of the retained correlation information.

1 2. (Cancelled)

1 3 (Cancelled)

1 4. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the ~~message~~ retained
2 correlation information for each application-level message further includes an identification of
3 the each application-level message's sending service and receiving service.

1 5. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the ~~message~~ retained
2 correlation information for each application-level message further includes an indication as to
3 whether the each application-level message has completed transmission.

1 6. (Currently Amended) ~~A~~ The method as recited in claim 5, wherein the ~~message~~ retained
2 correlation information for each application-level message further includes a reason or error log
3 regarding why the each application-level message has failed to complete its transmission if the
4 each application-level message has failed.

1 7. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the ~~message~~ retained
2 correlation information for each application-level message further includes a portion of the each
3 message content.

1 8. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the ~~message~~ retained
2 correlation information for each application-level message further includes two or more of the
3 following: an identification of the each application-level message's sending and receiving
4 service, an indication as to whether the each application-level message has completed
5 transmission, a reason or error log regarding why the each application-level message has failed
6 to complete its transmission if the each application-level message has failed, and a portion of the
7 each application-level message content, a size of the each application-level message, a topic of
8 the each application-level message, a status on processing steps taken on the each application-
9 level message, ~~and~~ or specification of any protocols used in receiving and sending the each
10 application-level message.

1 9. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the call information
2 for each call includes a Call Identifier (ID) uniquely identifying the each call.

1 10. (Currently Amended) ~~A~~ The method as recited in claim 9, wherein the call information
2 for each call further includes two or more of the following: an indication as to whether the each
3 call is complete and a reason for the call not being complete if the each call fails to complete, a
4 type of each call, a receiving and sending time for the each call, a sender and recipient service of
5 each call, a status of policy evaluation for each call, ~~and~~ or a set of hops in each call.

1 11. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the session
2 information for each session includes a Session Identifier (ID) uniquely identifying the each
3 session.

1 12. (Currently Amended) ~~A~~ The method as recited in claim 11, wherein the session
2 information for each session further includes an indication as to whether the each session is
3 complete and a reason for the session not being complete if the each session fails to complete.

1 13. (Currently Amended) ~~A~~ The method as recited in claim 11, wherein the session
2 information for each session further includes a calculated or executed route for application-level
3 messages sent within the each session.

1 14. (Currently Amended) ~~A~~ The method as recited in claim 11, wherein the session
2 information for each session further includes an identity and status of each service of the each
3 session.

1 15. (Currently Amended) ~~A~~ The method as recited in claim 11, wherein the session
2 information for each session further includes two or more of the following: an indication as to
3 whether the each session is complete and a reason for the session not being complete if the each
4 session fails to complete, a calculated or executed route for messages sent within the each
5 session, and an identity and status of each service of the each session, an initiating time and
6 completion time for each session, ~~and~~ or an indication of a set of calls in each session.

1 16. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein each application-level
2 message belongs to a particular call between two of the services.

1 17. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein each call includes a
2 request message and a response message or a notification message.

1 18. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein a call is defined as a
2 set of predefined application-level message types.

1 19. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein a session is
2 determined by the services which send application-level messages for the set of calls as a set of
3 calls.

1 20. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein at least some of
2 services are implemented on different computer systems and at least some of these computer
3 systems differ from a computer system which implements the message interchange network.

1 21. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the ~~tracking~~ retaining
2 of correlating information comprises:

3 receiving a current application-level message at the message interchange network,
4 wherein the current application-level message belongs to a current session and a current call;
5 when the received current application-level message is a first message received for the
6 current session, assigning a session identifier for the current message and embedding the session
7 identifier in the current application-level message prior to forwarding the application-level
8 message to ~~its destination~~ the one or more services specified by the current application-level
9 message;

10 when the received current application-level message is ~~a first message~~ received first for
11 the current call, assigning a call identifier for the current application-level message and
12 embedding the call identifier in the current application-level message prior to forwarding the
13 application-level message to ~~its destination~~ the one or more services specified by the current
14 application-level message;

15 assigning a hop identifier for the current application-level message which uniquely
16 identifies the current application-level message; and

17 associating and storing the session identifier, the call identifier, and the hop identifier,
18 along with message information, call information, and session information for the received
19 application-level message.

1 22. (Currently Amended) ~~A~~ The method as recited in claim 1, ~~further comprising:~~
2 ~~receiving a~~ wherein the query for the retained correlation information is regarding a
3 particular session or call, ~~wherein the query is sent by a first one of the services;~~ and
4 ~~sending~~ wherein the specific portions of the retained correlation information that are sent
5 to the first service are related to the particular session or call of the query.

1 23. (Currently Amended) ~~A~~ The method as recited in claim 22, wherein the specific one or
2 more portions of the retained correlation information, that are sent to the first service, includes
3 information regarding application-level messages sent between more than two services.

1 24. (Currently Amended) ~~A~~ The method as recited in claim 22, further comprising
2 determining whether the first service is authorized to make the query and only sending the
3 specific one or more portions of the retained correlation information that are sent to the first
4 service when it is determined that the first service is authorized.

1 25. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein at least one of the
2 services is a routing script.

1 26. (Currently Amended) ~~A~~ The method as recited in claim 1, wherein the retained
2 correlation information includes at least one message identifier specified in at least one of the
3 application-level messages which is sent by a sending service, the method further comprising:
4 receiving a query for the retained correlation information regarding a particular message
5 identifier, wherein the query is sent by a ~~first~~ second one of the services; and
6 sending correlation information to the ~~first~~ second service related to the particular
7 message identifier of the query.

1 27. (Currently Amended) A computer system operable to correlate services within a
2 computer network the computer system comprising:
3 one or more processors;
4 one or more memory, wherein at least one of the processors and memory are adapted for:
5 providing a message interchange network for exchanging application-level
6 messages between services that are located outside the message interchange network, ~~the~~
7 ~~message interchange network being built on an open platform overlaying a public~~
8 ~~network and managing a plurality of services;~~

9 registering, at the message interchange network, each of the plurality of services
10 so that each service is specified as being accessible by a plurality of one or more of the
11 plurality of services according to one or more properties and permissions associated with
12 each of service in the plurality of services; and

13 receiving, at the message interchange network, a plurality of application-level
14 messages that each specify one or more of the plurality of services that are to receive the
15 each application-level message and forwarding each received application-level message
16 towards its specified service according to the one or more properties and permissions
17 associated with the specified service;

18 ~~tracking~~ retaining correlation information regarding each application-level
19 message received into message interchange network, wherein the application-level
20 messages are being sent between pairs of the services, wherein the retained correlation
21 information for each application-level message pertains to each application-level message
22 and any other application-level messages related to the each application-level message,
23 the retained correlation information including one or more of: a Hop Identifier (ID)
24 uniquely identifying a hop between a sender and receiver of the each application-level
25 message, call information regarding a call to which the each application-level message
26 and any other related application-level message belongs, ~~and~~ or session information
27 regarding a session to which the each application-level message and any other related
28 application-level message belongs, wherein the correlation information is retained in a
29 searchable format that is accessible by the message interchange network;

30 receiving, at the message interchange network, a query from a first service to
31 search the retained correlation information for a specific one or more portions of the
32 retained correlation information; and

33 sending, to the first service, a response to the query that includes the specific one
34 or more portions of the retained correlation information.

1 28-29. (Cancelled)

1 30. (Currently Amended) ~~A~~ The computer system as recited in claim 27, wherein the
2 ~~message~~ retained correlation information for each application-level message further includes two
3 or more of the following: an identification of the each application-level message's sending and
4 receiving service, an indication as to whether the each application-level message has completed
5 transmission, a reason or error log regarding why the each application-level message has failed

6 to complete its transmission if the each application-level message has failed, and a portion of the
7 each application-level message content, a size of the each application-level message, a topic of
8 the each application-level message, a status on processing steps taken on the each application-
9 level message, ~~and~~ or specification of any protocols used in receiving and sending the each
10 application-level message.

1 31. (Currently Amended) ~~A~~ The computer system as recited in claim 27, wherein the call
2 information for each call includes a Call Identifier (ID) uniquely identifying the each call.

1 32. (Currently Amended) ~~A~~ The computer system as recited in claim 31, wherein the call
2 information for each call further includes two or more of the following: an indication as to
3 whether the each call is complete and a reason for the call not being complete if the each call
4 fails to complete, a type of each call, a receiving and sending time for the each call, a sender and
5 recipient service of each call, a status of policy evaluation for each call, ~~and~~ or a set of hops in
6 each call.

1 33. (Currently Amended) ~~A~~ The computer system as recited in claim 27, wherein the session
2 information for each session includes a Session Identifier (ID) uniquely identifying the each
3 session.

1 34. (Currently Amended) ~~A~~ The computer system as recited in claim 33, wherein the session
2 information for each session further includes two or more of the following: an indication as to
3 whether the each session is complete and a reason for the session not being complete if the each
4 session fails to complete, a calculated or executed route for messages sent within the each
5 session, and an identity and status of each service of the each session, an initiating time and
6 completion time for each session, ~~and~~ or an indication of a set of calls in each session.

1 35. (Currently Amended) ~~A~~ The computer system as recited in claim 31, wherein each call
2 includes a request message and a response message or a notification message.

1 36. (Currently Amended) ~~A~~ The computer system as recited in claim 27, wherein a call is
2 defined as a set of predefined application-level message types.

1 37. (Currently Amended) ~~A~~ The computer system as recited in claim 36, wherein a session is
2 determined by the services which send application-level messages for the set of calls as a set of
3 calls.

1 38. (Currently Amended) ~~A~~ The computer system as recited in claim 27, wherein at least
2 some of services are implemented on difference computer systems and at least some of these
3 computer systems differ from a computer system which implements the message interchange
4 network.

1 39. (Currently Amended) ~~A~~ The computer system as recited in claim 27, wherein the
2 ~~tracking~~ retaining of correlating information comprises:
3 receiving a current application-level message at the message interchange network,
4 wherein the current application-level message belongs to a current session and a current call;
5 when the received current application-level message is a first message received for the
6 current session, assigning a session identifier for the current message and embedding the session
7 identifier in the current application-level message prior to forwarding the application-level
8 message to ~~its destination~~ the one or more services specified by the current application-level
9 message;
10 when the received current application-level message is ~~a first message~~ received first for
11 the current call, assigning a call identifier for the current application-level message and
12 embedding the call identifier in the current application-level message prior to forwarding the
13 application-level message to ~~its destination~~ the one or more services specified by the current
14 application-level message;
15 assigning a hop identifier for the current application-level message which uniquely
16 identifies the current application-level message; and
17 associating and storing the session identifier, the call identifier, and the hop identifier,
18 along with message information, call information, and session information for the received
19 application-level message.

1 40. (Currently Amended) ~~A~~ The computer system as recited in claim 27, ~~wherein the at least~~
2 ~~one of the processors and memory are further adapted for:~~
3 ~~receiving a~~ wherein the query for the retained correlation information is regarding a
4 particular session or call, ~~wherein the query is sent by a first one of the services~~; and

5 ~~sending~~ wherein the specific portions of the retained correlation information that are sent
6 to the first service are related to the particular session or call of the query.

1 41. (Currently Amended) ~~A~~ The computer system as recited in claim 27, wherein at least one
2 of the services is a routing script.

1 42. (Currently Amended) A computer program product for correlating services within a
2 computer network, the computer program product comprising:

3 at least one computer readable medium;

4 computer program instructions stored within the at least one computer readable medium
5 configured for:

6 providing a message interchange network for exchanging application-level
7 messages between services that are located outside the message interchange network, the
8 ~~message interchange network being built on an open platform overlaying a public~~
9 ~~network and managing a plurality of services;~~

10 registering, at the message interchange network, each of the plurality of services
11 so that each service is specified as being accessible by a plurality of one or more of the
12 plurality of services according to one or more properties and permissions associated with
13 each of service in the plurality of services; ~~and~~

14 receiving, at the message interchange network, a plurality of application-level
15 messages that each specify one or more of the plurality of services that are to receive the
16 each application-level message and forwarding each received application-level message
17 towards its specified service according to the one or more properties and permissions
18 associated with the specified service;

19 ~~tracking~~ retaining correlation information regarding each application-level
20 message received into message interchange network, wherein the application-level
21 messages are being sent between pairs of the services, wherein the retained correlation
22 information for each application-level message pertains to each application-level message
23 and any other application-level messages related to the each application-level message,
24 the retained correlation information including one or more of: a Hop Identifier (ID)
25 uniquely identifying a hop between a sender and receiver of the each application-level
26 message, call information regarding a call to which the each application-level message
27 and any other related application-level message belongs, ~~and~~ or session information
28 regarding a session to which the each application-level message and any other related

application-level message belongs, wherein the correlation information is retained in a searchable format that is accessible by the message interchange network;
receiving, at the message interchange network, a query from a first service to search the retained correlation information for a specific one or more portions of the retained correlation information; and
sending, to the first service, a response to the query that includes the specific one or more portions of the retained correlation information.

43-44. (Cancelled)

45. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein the ~~message~~ retained correlation information for each application-level message further includes an identification of the each application-level message's sending service and receiving service.

46. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein the ~~message~~ retained correlation information for each application-level message further includes an indication as to whether the each application-level message has completed transmission.

47. (Currently Amended) ~~A~~ The computer program product as recited in claim 46, wherein the ~~message~~ retained correlation information for each application-level message further includes a reason or error log regarding why the each application-level message has failed to complete its transmission if the each application-level message has failed.

48. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein the ~~message~~ retained correlation information for each application-level message further includes a portion of the each message content.

49. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein the ~~message~~ retained correlation information for each application-level message further includes two or more of the following: an identification of the each application-level message's sending and receiving service, an indication as to whether the each application-level message has completed transmission, a reason or error log regarding why the each application-level message has failed to complete its transmission if the each application-level message has failed, and a portion of the each application-level message content, a size of the each application-level

8 message, a topic of the each application-level message, a status on processing steps taken on the
9 each application-level message, ~~and~~ or specification of any protocols used in receiving and
10 sending the each application-level message.

1 50. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
2 the call information for each call includes a Call Identifier (ID) uniquely identifying the each
3 call.

1 51. (Currently Amended) ~~A~~ The computer program product as recited in claim 50, wherein
2 the call information for each call further includes two or more of the following: an indication as
3 to whether the each call is complete and a reason for the call not being complete if the each call
4 fails to complete, a type of each call, a receiving and sending time for the each call, a sender and
5 recipient service of each call, a status of policy evaluation for each call, and a set of hops in each
6 call.

1 52. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
2 the session information for each session includes a Session Identifier (ID) uniquely identifying
3 the each session.

1 53. (Currently Amended) ~~A~~ The computer program product as recited in claim 52, wherein
2 the session information for each session further includes an indication as to whether the each
3 session is complete and a reason for the session not being complete if the each session fails to
4 complete.

1 54. (Currently Amended) ~~A~~ The computer program product as recited in claim 52, wherein
2 the session information for each session further includes a calculated or executed route for
3 application-level messages sent within the each session.

1 55. (Currently Amended) ~~A~~ The computer program product as recited in claim 52, wherein
2 the session information for each session further includes an identity and status of each service of
3 the each session.

1 56. (Currently Amended) ~~A~~ The computer program product as recited in claim 52, wherein
2 the session information for each session further includes two or more of the following: an

3 indication as to whether the each session is complete and a reason for the session not being
4 complete if the each session fails to complete, a calculated or executed route for messages sent
5 within the each session, and an identity and status of each service of the each session, a initiating
6 time and completion time for each session, or an indication of a set of calls in each session.

1 57. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
2 each application-level message belongs to a particular call between two of the services.

1 58. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
2 each call includes a request message and a response message or a notification message.

1 59. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein a
2 call is defined as a set of predefined application-level message types.

1 60. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein a
2 session is determined by the services which send application-level messages for the set of calls
3 as a set of calls.

1 61. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
2 at least some of services are implemented on difference computer systems and at least some of
3 these computer systems differ from a computer system which implements the message
4 interchange network.

1 62. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
2 the ~~tracking~~ retaining of correlating information comprises:
3 receiving a current application-level message at the message interchange network,
4 wherein the current application-level message belongs to a current session and a current call;
5 when the received current application-level message is a first message received for the
6 current session, assigning a session identifier for the current message and embedding the session
7 identifier in the current application-level message prior to forwarding the application-level
8 message to ~~its destination~~ the one or more services specified by the current application-level
9 message;

10 when the received current application-level message is ~~a first message~~ received first for
11 the current call, assigning a call identifier for the current application-level message and

12 embedding the call identifier in the current application-level message prior to forwarding the
13 application-level message to ~~its destination~~ the one or more services specified by the current
14 application-level message;

15 assigning a hop identifier for the current application-level message which uniquely
16 identifies the current application-level message; and

17 associating and storing the session identifier, the call identifier, and the hop identifier,
18 along with message information, call information, and session information for the received
19 application-level message.

1 63. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, ~~wherein~~
2 ~~the computer program product is further configured for:~~

3 ~~receiving a~~ wherein the query for the retained correlation information is regarding a
4 particular session or call, ~~wherein the query is sent by a first one of the services; and~~

5 ~~sending~~ wherein the specific portions of the retained correlation information that are sent
6 to the first service are related to the particular session or call of the query.

1 64. (Currently Amended) ~~A~~ The computer program product as recited in claim 63, wherein
2 the specific one or more portions of the retained correlation information, that are sent to the first
3 service, includes information regarding application-level messages sent between more than two
4 services.

1 65. (Currently Amended) ~~A~~ The computer program product as recited in claim 63, wherein
2 the computer program product is further configured for determining whether the first service is
3 authorized to make the query and only sending the specific one or more portions of the retained
4 correlation information that are sent to the first service when it is determined that the first service
5 is authorized.

1 66. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
2 at least one of the services is a routing script.

67. (Currently Amended) ~~A~~ The computer program product as recited in claim 42, wherein
the retained correlation information includes at least one message identifier specified in at least
one of the application-level messages which is sent by a sending service, ~~the method further~~
~~comprising; and~~ wherein the computer program product is further configured for:

receiving a query for the retained correlation information regarding a particular message identifier, wherein the query is sent by a ~~first~~ second one of the services; and

sending a portion of the retained correlation information to the ~~first~~ second service related to the particular message identifier of the query.